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Response to Arguments

Applicant's arguments filed September 29, 2008 have been fully considered but they are not persuasive. Applicant has argued and traversed each set of rejections. The Examiner addresses each argument and rejection below:

With respect to the rejection of claims 1 – 6, 24 and 26 as unpatentable over Bodkins, et al. in view of Ouellette and further in view of Wright, et al., the Examiner has fully considered the arguments and the prior art, but does not find such arguments persuasive. Applicant argues that Bodkins, et al. fail to teach that the insulating material 3 and 3' does not inherently reduce a flow resistance between the inner walls and the fluid so as to accelerate the flow of fluid injected into the injection mold. Though the insulating material is not disclosed as explicitly accelerating the fluid flow, *the insulating material is the same material as that in Applicant's apparatus (polyethylene)* and thus, inherently has the properties of Applicant's coating or flow accelerating means. Furthermore, the insulating material of Bodkins, et al. is identified as having a lower thermal conductivity while the metal mold has a higher thermal conductivity. Inherently, the insulating material, with more resistance to heat transfer, maintains the polymer in its more flowable state, such that its heat does not dissipate and therefore, it remains in its more flowable state (i.e., less viscous). Applicant's remaining arguments with respect to the fact that the thickness of the insulating material may effect changes in the fluid flow and perhaps decelerate the flow is speculation without identifying any further structural component that is lacking within the apparatus of Bodkins, et al. as compared to that of Applicant's apparatus.

Furthermore, Applicant's arguments with respect to the features of the mold coating and the results the coating produces such that the fluid flow is accelerated may be a new use for a known structure; however, per MPEP 2112, "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property, which is inherently present in the prior art, does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004). In addition, with respect to Applicant's arguments regarding inherency, "[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention."); *Abbott Labs v. Geneva Pharms., Inc.*, 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed.Cir.1999).

Regarding the use of the secondary reference of Wright, et al., the Examiner contends that the reference of Wright, et al. is analogous and valid because the insulation of the gate allows the fluid flow into the mold cavity to remain fluent. Furthermore, Applicant has argued that Wright does not teach that the opening extends through the cavity 16; however, as claimed, the passage of Wright, et al. extends through the mold wherein the passage has inner walls for injecting a fluid therethrough and into an internal space. Because the gate is a passage extending through the mold

walls, it has a passage with inner walls for injecting a fluid therethrough and into an internal space. The Examiner contends that one of ordinary skill in the art of injection molding fully understands the importance of ensuring that premature cooling is prevented such that the entire mold cavity is completely filled with the molten resin and thus, would insulate not only the mold cavity by the passage, as taught by Wright, et al. for the purpose of preventing such premature cooling.

With respect to the rejection of claims 1 – 7, 24 and 26 and claims 8 – 9, 10 – 11, 12, and 15 as unpatentable over Yotsutsuji, et al. in view of Ouellette and further in view of Wright, et al., the Examiner does not find such arguments persuasive. Applicant argues that Yotsutsuji, et al. (U.S. 4,225,109) does not teach that the insulating layer is a flow accelerating means and merely insulates the resin from the metal mold. Though this may be true, Applicant is arguing the function or intended use of the coating without identifying any structural deficiency within the apparatus of Yotsutsuji, et al. The insulating layer of Yotsutsuji, et al. is the same material as that used in Applicant's apparatus (a metal, a solid lubricant, a ceramic coating, a polymer coating) and thus, inherently has the properties of Applicant's coating or flow accelerating means. Furthermore, even if it does allow the metal layer (item 12 – figure 1) to heat up rapidly due to the molten polymer being injected, the heat-insulating layer has a lower thermal conductivity than the metal layer and thus, maintains the polymer in its molten and more flowable or less viscous state.

With respect to the secondary reference of Ouellette, Applicant argues that Ouellette does not teach a flow accelerating means on the inner walls of passage 130 but merely insulating the interior mold space using polymer bars 116 and 118. The passage 130 of Ouellette is not an interior mold space but a manifold which leads to nozzles 150 and subsequently the nozzles attach to the mold inlet to inject molten resin therethrough. The secondary reference of Ouellette has been cited by the Examiner, stated in the previous rejection(s) as teaching the importance of insulating the mold structures through which the molten resin flows, thereby ensuring the material remains fluent. Thus, the Examiner contends that one of ordinary skill in the art of injection molding would still turn to Ouellette to modify a manifold, mold gate or mold surface with insulation to ensure that the resin correctly flows into the mold cavity and is not prematurely solidified in the pathways.

With respect to the rejection of claims 1 – 3, 5, 24 and 26 and claims 12 – 15 as unpatentable over Hendry in view of Ouellette and further in view of Wright, et al., the Examiner does not find the arguments persuasive. Turning to the reference of Hendry (U.S. 4,201,742), Applicant again argues that the Teflon coating of Hendry acts as a thermo-barrier but does not accelerate the flow of the fluid. Though this may be true, Applicant is arguing the function or intended use of the coating without identifying any structural deficiency within the apparatus of Hendry. The Teflon coating of Hendry is the same material as that used in Applicant's apparatus (polytetrafluoroethylene) and thus, inherently has the properties of Applicant's coating or flow accelerating means. Because

Teflon has a lower thermal conductivity than metal (used for the mold), it insulates the molten plastic, prevents dissipation of heat from the molten plastic, and thus, allows it to remain in its more flowable state.

Because Hendry does not teach a mold passage with the same coating, the Examiner again applies the reference of Ouellette and Wright, et al. As stated previously, both Ouellette and Wright, et al. teach some type of insulation, whether on the manifold walls or gate allowing the fluid flow into the mold cavity to remain fluent. Again, the Examiner contends that one of ordinary skill in the art of injection molding fully understands the importance of ensuring that premature cooling is prevented such that the entire mold cavity is completely filled with the molten resin and thus, one of ordinary skill in the art would turn to either reference to modify a mold passage with a coating to ensure that the resin remains fluent and is prevented from any premature cooling within the passages.

With respect to the rejection of claims 1 – 3 as being unpatentable over Kataoka, et al. in view of Ouellette and further in view of Wright, et al. the Examiner does not find Applicant's arguments persuasive. Applicant argues that the reference of Kataoka, et al. (U.S. 5,362,226) does not teach that the insulating layer is a flow accelerating means. Again, though Kataoka, et al. does not teach that the layer explicitly accelerates the fluid flow, the insulating material is the same as that used in Applicant's apparatus (a polymer, as claimed). Because the insulating material (polyamide) as taught by Kataoka, et al. is also a lubricant known to have excellent slip or parting properties, it is

not only the same material as that used in Applicant's apparatus, but also has *inherently the same properties*. Furthermore, Applicant argues the combination of the reference of Kataoka with that of Ouellette and Wright. As stated above, both references teach a manifold being insulated or a gate or mold passage being insulated. Even if both do not teach that the material specifically accelerates the fluid flow, the material(s) used in both references of Ouellette and Wright are identical to that of Applicant's and thus, exhibits the same properties. Furthermore, the Examiner contends and has stated in the previous rejections that each reference teaches the importance of materials like PEEK, Teflon and polyamide as insulating any passage through which the molten resin may flow, thereby ensuring that the resin remains fluent and completely fills the mold cavity. Without such insulation, premature cooling or solidification of the resin may occur in the mold passage and thus, requires removal of the solidified material from the passage and results in deformed articles because of incomplete filling of the mold cavity.

Per MPEP 2141, "Prior art is not limited just to the references being applied, but includes the understanding of one of ordinary skill in the art. The prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art. The "mere existence of differences between the prior art and an invention does not establish the invention's nonobviousness." *Dann v. Johnston*, 425 U.S. 219, 230, 189 USPQ 257, 261 (1976). In the instant case, the Examiner asserts that one of ordinary skill in the art of injection molding has the knowledge and skills necessary to modify the mold passage

with a coating, for the purpose of maintaining the resin in its fluent state. As taught by the primary references of Bodkins, et al., Yotsutsuji, et al., Hendry and Kataoka, et al. insulating the mold cavity ensures that the resin remains at its critical temperature, ensuring that it does not cool prematurely and fills the entire cavity, preventing any deformations to the finished product. Similarly, Ouellette and Wright, et al. teach insulating the manifold and gate for the purpose of preventing premature cooling of the resin for the same reasons. Thus, one of ordinary skill in the art would insulate the mold cavity, manifold and gate or any passage through which the resin flows to ensure it remains fluent and does not cool prematurely.

In summary, Applicant's arguments merely identify the prior art coatings or layers as deficient in their function or performance in accelerating the fluid flow, but do not identify any deficiency in the structural components of the prior art apparatus. Furthermore, Applicant's argument that the prior art references would have disclosed the coatings or layers as a flow accelerating means as pertaining to their function, is merely pointing out a potentially new property and does not render the apparatus novel over the prior art cited. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See also *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004). Per MPEP 2112, “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v.*

lreco Inc., 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property, which is inherently present in the prior art, does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364,1368 (Fed. Cir. 2004). Regarding inherency, “[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention.”); *Abbott Labs v. Geneva Pharms., Inc.*, 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed.Cir.1999).

Regarding Applicant's statements that the Examiner has failed to apply only the best art, the Examiner disagrees. The Examiner has endeavored to address arguments regarding each set of rejections and maintains each rejection accordingly for the reasons as set forth herein and for the reasons as presented in each previous rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA VERONICA D. EWALD whose telephone number is (571)272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Yogendra N Gupta/
Supervisory Patent Examiner, Art Unit 1791

MVE